

WHAT IS CLAIMED IS:

1. A recording apparatus provided for a tape-shaped recording medium having an anisotropic property oblique with respect to a thickness direction, said recording apparatus comprising:

transfer means for transferring said tape-shaped recording medium in a forward direction or a reversed direction;

a recording head provided in a way to create a recording track in a direction parallel to said transfer directions of said tape-shaped recording medium, which is transferred by said transfer means;

a signal-processing unit connected to said recording head and supplied with a signal to be recorded, said signal processing unit being used for carrying out signal processing required for a recording operation on a signal to be recorded; and

a control unit for controlling at least operations of said signal-processing unit, said control unit forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reversed direction and controlling said signal-processing unit in accordance with a result of said judgment.

2. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 1, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value greater than the magnitude of said recording current, which is supplied to said recording head while said magnetic tape is traveling in said reversed direction.

3. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 2, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 4.

4. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 2, wherein:

when a magnetic head causing a large thermal

asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that a line recording density is increased to a value greater than the magnitude of said line recording density for said reversed direction.

5. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 4, wherein said control unit increases the frequency of a clock signal supplied to said signal-processing unit.

6. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 1, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value smaller than the magnitude of said recording current, which is supplied to said recording head while said magnetic tape is traveling in said forward direction.

7. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 6, wherein:

when a magnetic head causing a small thermal

asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 1.

8. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 6, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that a line recording density is decreased to a value smaller than the magnitude of said line recording density for said forward direction.

9. A recording apparatus provided for a tape-shaped recording medium in accordance with claim 8, wherein said control unit decreases the frequency of a clock signal supplied to said signal-processing unit.

10. A reproducing apparatus provided for a tape-shaped recording medium having an anisotropic property oblique with respect to a thickness direction, said reproducing apparatus comprising:

transfer means for transferring said tape-shaped recording medium in a forward direction or a reversed

direction;

a reproducing head for scanning said tape-shaped recording medium along a recording track created in a direction parallel to said transfer directions of said tape-shaped recording medium, which is transferred by said transfer means;

a signal-processing unit supplied with an output signal from said reproducing head, said signal-processing unit being used for carrying out signal processing required for a reproducing operation on a reproduced signal output by said reproducing head; and

a control unit for controlling at least operations of said signal-processing unit, said control unit forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reversed direction and controlling said signal-processing unit in accordance with a result of said judgment.

11. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 10, wherein said control unit switches signal processing carried out on a phase characteristic in said signal processing unit from one kind of processing to another in dependence on an outcome of said judgment as to whether

said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reversed direction.

12. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 11, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said signal-processing unit carries out signal processing on said phase characteristic of said reproduced signal output by said reproducing head at a first angle over the entire frequency band of said reproduced signal.

13. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 12, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said reproducing head, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 4.

14. A reproducing apparatus provided for a tape-

shaped recording medium in accordance with claim 13, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

15. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 12, wherein:

a magnetic head causing a large thermal asperity noise is employed as said reproducing head; and

said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

16. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 15, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

17. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 11, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said signal-processing unit carries out signal processing on said phase characteristic of said reproduced signal output by said reproducing head at a second angle over the entire frequency band of said reproduced signal.

18. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 17, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said reproducing head, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 1.

19. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 18, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal



output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 1 on said reproduced signal.

20. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 17, wherein:

a magnetic head causing a large thermal asperity noise is employed as said reproducing head; and

said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

21. A reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 20, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

22. A recording and reproducing apparatus provided for a tape-shaped recording medium having an anisotropic property oblique with respect to a thickness direction,

said recording and reproducing apparatus comprising:

transfer means for transferring said tape-shaped recording medium in a forward direction or a reversed direction;

a recording head and reproducing head, which is provided in a way to create a recording track in a direction parallel to said transfer directions of said tape-shaped recording medium transferred by said transfer means and is used for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded, in addition to an output signal from said reproducing head, said signal-processing unit being used for carrying out signal processing required for a recording operation on a signal to be recorded and used for carrying out signal processing required for a reproducing operation on a reproduced signal output by said reproducing head; and

a control unit for controlling at least operations of said signal-processing unit, said control unit forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reversed

direction and controlling said signal-processing unit in accordance with a result of said judgment.

23. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 4.

24. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 23, wherein said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value greater than the magnitude of said recording current, which is supplied to said recording head while said magnetic tape is traveling in said reversed direction.

25. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 23, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 1.

26. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 25, wherein said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value smaller than the magnitude of said recording current, which is supplied to said recording head while said magnetic tape is traveling in said forward direction.

27. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that a line recording density is increased to a value greater than the magnitude of

said line recording density for said reversed direction.

28. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 27, wherein said control unit increases the frequency of a clock signal supplied to said signal-processing unit.

29. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said control unit controls said signal-processing unit so that a line recording density is decreased to a value smaller than the magnitude of said line recording density for said forward direction.

30. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 29, wherein said control unit decreases the frequency of a clock signal supplied to said signal-processing unit.

31. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with

claim 22, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 4.

32. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 31, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a first angle over the entire frequency band of said reproduced signal.

33. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 32, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on

said reproduced signal.

34. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 1.

35. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 34, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a second angle over the entire frequency band of said reproduced signal.

36. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 35, wherein, after said signal processing is carried out on said phase characteristic of said

reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 1 on said reproduced signal.

37. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

38. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 37, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a first angle over the entire frequency band of said reproduced signal.

39. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with



claim 38, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing on said reproduced signal by adoption of a method known as partial response class 4.

40. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 22, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reversed direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

41. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 40, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a second angle over the entire frequency band of said reproduced signal.

42. A recording and reproducing apparatus provided for a tape-shaped recording medium in accordance with claim 41, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing on said reproduced signal by adoption of a method known as partial response class 4.